



A COMPREHENSIVE STUDY OF *PATHYA* *APATHYA* IN *BHAGNA* (FRACTURE)

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ABSTRACT

An injury to the musculoskeletal system can cause damage to bones, joints, muscles and tendons. In addition, the neurovascular bundle of the limb may be damaged. A fracture is a break in the continuity of a bone. Fractures are one of the commonest traumatic conditions encountered in day to day surgical practice due to rash driving, self-fall, etc. According to *Ayurveda*, *Asthi* is the primary structural framework of the body. In addition to offering basic disease prevention and management, *Ayurveda* also has a number of specialized fields that can help in treating more severe illnesses, one of them is *Bhagna Chikitsa*. While the patient receives *Chikitsa*, if he adheres to the *Ahara* and *Vihara* *Pathya* and *Apathya*, the disease may not advance and aids in a quicker and more complete recovery. *Ahara-vihara* that is nourishing and healthy for the body as well as bringing happiness to the mind is known as *Pathya*, and the contrary is known as *Apathya*. A healthy diet plays a crucial role during the healing of Fracture.

KEYWORDS: *Bhagna*, Fracture, *Pathya*, *Apathya*, Nutrition.

INTRODUCTION

Nutrition plays a significant part in bone health. A well-balanced diet full of vitamins, minerals, and other nutrients can make a big difference in how healthy the bones are. Involved in both the prevention and treatment of bone disorders, proper nutrition is an essential element of skeletal health. Annual Incidence rate of fracture among children, adolescents and adults was 23/1000, 29/1000 and 18/1000 respectively. Overall prevalence was 200/1000.^[1]

The word "*Pathya*" refers to a balanced diet. The phrase "*Annad jeevanam*" means "Food is life". *Pathya* plays a significant role in the treatment and prevention of disease. As a result, it is listed under *Trayopasthamba* i.e., *Ahara*, *Nidra* and *Bhramhacharya* by *Acharya Charaka*.^[2]

The word *Bhagna* is derived from the word *Bhanj dhatu* and *Katupratyaya* meaning to break. *Bhanj* means motion, which once again means to break. The bones sustain trauma in different ways.

Etiological factors for *Bhagna*,^[3] are *Pathana* (Slip or fall), *Peedana* (Pressure/Compression), *Praharaana* (Striking), *Akshepana* (Excessive movement), *Vyala mriga dashana abhigata* (Bite of ferocious animal).

Clinical and diagnostic features as per *Acharya Sushruta*,^[4] are *Shwayathu bahulyam* (Excessive swelling), *Spandana vivartana* (Inability to bear shaking, moving), *Sparsha Asahishnutham* (Local tenderness), *Avapeedyamane shabdha* (crepitus or grating), *Srasthangatha* (visible discharge), *Vivda vedana pradurbavah* (pain of various types), *Sarvasu avasthasu na sharma labhah* (No relief or comfort in any position).

Classification

According to *Acharya Sushruta*^[5]-On the basis of structure involved in the skeletal injuries have been divided in two types-

1. *Sandhimukta* (Joint Dislocation)- 6 types^[6]: *Utpista*, *Vislista*, *Vivartika*, *Avakshipta*, *Atikshipta*, *Tiryakshipta*.
2. *KandaBhagna*. (Bone Fracture) – 12 types^[7]: 1. *Karkataka* 2. *Ashwakarana* 3. *Churnita* 4. *Pichhita* 5.

Asthichallita 6. *Kanda Bhagna* 7. *Majjanugata* 8. *Atipatita* 9. *Vakra* 10. *Chinna* 11. *Patita* 12. *Sputita*.

Vagbhata's classification^[8]: 1. *Sandhi Bhagna* 2. *Asandhi Bhagna*.

Bhagna is further divided the on the basis of their clinical manifestation^[9] as: 1. *Savrana Bhagna* (compound fracture)- Fracture with the wound i.e. bone is exposed after injury. 2. *Avrana Bhagna* (closed fracture)- When bone is Fractured but no visible wound on the skin is seen.

Acharya Sharangadhara has described the eight varieties of *Bhagna*: 1. *Bhagna prista* 2. *Vidarita* 3. *Vivartita* 4. *Vishlishata* 5. *Adhogata* 6. *Urdhvagata* 7. *SandhiBhagna* 8. *Tiryaka kshipata*.

Classification of fracture as per contemporary medical science^[10]

A. 1. Fractures caused by sudden injury- Direct violence or indirect violence.

2. Fatigue or stress fractures
3. Pathological fractures

B. 1. Closed fracture or simple fracture
2. Open fracture or compound fracture

C. 1. External compound
2. Internal compound

D. Based on pattern

1. Transverse fracture
2. Oblique fracture
3. Spiral fracture
4. Comminuted fracture

5. Compression fracture
6. Greenstick fracture
7. Impacted fracture

Bhagna Chikitsa^[11]: Mainly four principles of treatment for *Bhagna* are *Anchana* (to apply traction), *Pidana* (Manipulation by local pressure), *Sankshepa* (opposition and stabilization of fractured part of bone) and *Bandhana* (Immobilization).

Few of the general line of treatment for *Bhagna* are *Parisheka*^[12] with *Nyagrodhadi kashaya*, *Pancha mula siddha dugdha*, *Chakra taila* and for *Lepa*^[13] with *Manjishtha*, *Yashtimadhu*, *Shalipisti*, *Raktachandana* and *Shatadhouta ghrta*.

According to the modern medicine, treatment of fracture can be divided into three phases.^[14] During the first phase, movement of part is prevented by splinting, ice therapy, compression and elevation. This helps in reducing the movement of the fractured part, swelling and pain. Second phase starts with the reduction, immobilization and third phase emphasizes on the rehabilitation of fractured part through various exercises.

Period for recovery from *Sandhi moksha*^[15]

In earlier age, *Sandhi* gets fixed within one month. In middle age *Sandhi* gets fixed within two months. In later age *Sandhi* gets fixed within three month.

Pathya Apathya

General *Pathya Apathya* explained by *Acharya Charaka* are *Jala*, *Ghruta*, *Dugdha*, *Odana* are beneficial for human from birth. *Dahana*, *Pachana*, *Marana* by *Agni*, *Kshara* and *Visha* respectively are harmful for human. After *Satmya* even good foods also becomes harmful.^[16]

The specific *Pathya Apathya* for *Bhagna* mentioned by different *Acharyas* are.

Sl.no	Pathya	Su ^[17]	Y.R. ^[18]	Bai.R. ^[19]	Guna karma. ^[20]
<i>Aharaja</i>					
1.	<i>Shaali</i>	✓	-	✓	<i>Tridoshagna</i>
2.	<i>Mamsa rasa</i>	✓	✓	✓	<i>Tridoshagna</i>
3.	<i>Ksheera</i>	✓	✓	✓	<i>Vatahara</i>
4.	<i>Sarpi</i>	✓	✓	✓	<i>Bhrumhana</i>
5.	<i>Yusha</i>	✓	-	✓	<i>Kaphpittahara</i>
6.	<i>Sateena</i>	✓	-	✓	<i>Pittakaphahara</i>
7.	<i>Rasona</i>	✓	-	✓	<i>Vatakaphahara</i>
8.	<i>Mamsa</i>	-	✓	✓	<i>Tridoshagna</i>
9.	<i>Mugda</i>	-	✓	✓	<i>Kaphapittahara</i>
10.	<i>Peya</i>	-	✓	-	<i>Bhrumhana</i>
11.	<i>Priyangu</i>	-	-	✓	<i>Tridosha shamaka</i>
12.	<i>Godhuma</i>	-	-	✓	<i>Vatahara</i>
13.	<i>Navaneeta</i>	-	-	✓	<i>Vatapittahara</i>
14.	<i>Taila</i>	-	-	✓	<i>vatahara</i>
15.	<i>Madhu</i>	-	-	✓	<i>Kaphapittahara</i>
16.	<i>Patola</i>	-	-	✓	<i>Kaphapitta shamaka</i>
17.	<i>Shigru</i>	-	-	✓	<i>Kapha vatahara</i>
18.	<i>Pattura</i>	-	-	✓	<i>Vatakaphahara</i>
19.	<i>Baala mulaka</i>	-	-	✓	<i>Tridoshahara</i>

20.	<i>Draksha</i>	-	-	✓	<i>Vatapittahara</i>
21.	<i>Dhatri (Amalakki)</i>	-	-	✓	<i>Kapavatahara</i>
22.	<i>Vajra valli</i>	-	-	✓	<i>Kaphavatahara</i>
23.	<i>Laksha</i>	-	-	✓	<i>Kaphapittahara</i>
24.	<i>Grushta Ksheera</i>	-	-	✓	
<i>Viharaja</i>					
25.	<i>Sheetambu secana</i>	-	-	✓	
26.	<i>Panka pradeha</i>	-	-	✓	
27.	<i>Bandana kriya</i>	-	-	✓	

Sl.no	Apathya	Su ^[21]	Y.R. ^[22]	Bai.R. ^[23]	B.P. ^[24]	A.H. ^[25]	Guna karma ^[21]
<i>Aharaja</i>							
1.	<i>Lavana</i>	✓	✓	✓	✓	✓	<i>Kapakara</i>
2.	<i>Katu</i>	✓	✓	✓	✓	✓	<i>Vatakara</i>
3.	<i>Kshara</i>	✓	✓	✓	✓	✓	<i>Pittakara</i>
4.	<i>Amla</i>	✓	✓	✓	✓	✓	<i>Pittakara</i>
5.	<i>Ruksha anna</i>	✓	✓	-	✓	✓	<i>Vatakara</i>
<i>Viharaja</i>							
6.	<i>Maithuna</i>	✓	✓	✓	✓	✓	<i>Vatakara</i>
7.	<i>Dhupa</i>	-	✓	✓	-	✓	<i>Pittakara</i>
8.	<i>Vyayama</i>	✓	✓	✓	✓	✓	<i>Vatakara</i>
9.	<i>Ayasa</i>	-	-	-	✓	-	<i>Vatakara</i>

Some of the nutrients contained in fruits and vegetables such as potassium, magnesium, iron, and zinc have been associated with increased bone density in the elderly of both genders as well as with the reduction of bone loss in elderly men.

Alcohol, Smoking, Salt, Coffee,^[26,27] should be avoided as these slowdowns the bone healing.

Proteins^[26]: Proteins make up almost half of the bone's structure. When there is a fracture, the body needs protein to build new bone for the repair. Additionally, it facilitates the body's absorption and utilization of calcium- another essential vitamin for healthy bones. Few of the Good sources of proteins are Meat, fish, milk, cheese, cottage cheese, yogurt, nuts, seeds, beans, soy products, and fortified cereals.

Calcium^[26]: This mineral also helps in building strong bones, so foods and drinks rich in it can help in bone fracture heal. Adults should get between 1,000 and 1,200 milligrams of calcium each day. Few of the Good sources of calcium are Milk, yogurt, cheese, cottage cheese, broccoli, turnip or collard greens, kale, soy, beans, canned tuna or salmon with bones, almond milk, and fortified cereals or juice.

Vitamin D^[26]: This vitamin promotes bone healing. It aids in the uptake and utilisation of calcium by the blood and build up the minerals in the bones. Few of the Good sources of vitamin D are Swordfish, salmon, cod liver oil, sardines, liver, fortified milk or yogurt, egg yolks, and fortified orange juice.

Vitamin C^[26]: Collagen is a protein that's an important building block for bone. Vitamin C helps the body to

make collagen, which helps the bone fracture to heal. Few of the Good sources of vitamin C are Citrus fruits like oranges, kiwi fruit, berries, tomatoes, peppers, potatoes, and green vegetables.

Iron^[26]: After a fracture, the healing process is slower in those with iron-deficiency anaemia because there aren't enough healthy red blood cells. Iron assists the body in producing collagen for bone regrowth. It also contributes to the delivery of oxygen to the bones, which supports in bone healing. Few of the Good sources of Iron are Red meat, dark-meat chicken or turkey, oily fish, eggs, dried fruits, leafy green veggies, whole-grain breads, and fortified cereals.

Potassium^[26]: This mineral prevents the body from losing calcium through urine. Few of the Good sources of Potassium are Bananas, orange juice, potatoes, nuts, seeds, fish, meat, and milk.

Other Nutrients^[27]: Copper is an important component to the action of several enzymes involved in the development of interconnections between macromolecules collagen and elastin. Zinc is a cofactor for many metalloproteins involved in bone development. Incompetence during the period of growth can cause a reduction of peak bone density. Manganese is a cofactor for many enzymes involved in bone metabolism. Magnesium improves bone quality. Reduced vitamin K levels have been associated with reduced bone density and increased risk of fractures.

DISCUSSION

In general, the *Pathya* which are explained by *Acharyas* are the food articles which should be of *Madhura kashaya Rasa, snigha guru Guna, Brimhana karma*.

Shali like *Shashtika shaali* has *madhura rasa, vata pitta shamaka, brumhana* and which helps in bone healing. *Shaka* like *Patola, lashuna, shigru, amalaki, baala moolaka* are *Guru guna, madhura rasa, vatahara* helps in promoting bone healing. *Shimbi* like *Sateena* has *laghu guna, Madhura alpa kashaya rasa, pittakaphahara. Maamsa* and *maamsa rasa* which is *Tridoshagna* and *bruhmana, Dugdha* is *guru, manda, shlakshna, Ghrita* is *madhura rasa* and *vata-pittahara, Drava* like *madhura rasaatmaka aushadha, draakshaasiddha jala, sheeta jala, Kritaanna* like *Mudga yusha, sateena yusha, mamsa rasa* are *pitta* and *kaphahara. Grushta ksheera* is *Brumhana* and is of rich calcium contents which are very helpful in bone healing. These food articles are *Brumhana* and helps in bone healing. *Vyayama, Maithuna, Rooksha anna* is *Vata vardhaka* and is told to avoid in *Bhagna*. So, *Brihmana annapaana* (nourishing diet) should be taken and *vatakara ahara vihara, Avidaahi* (non spicy food) and *Paishtika* (made of flour) should be avoided in *Bhagna*.

CONCLUSION

Implementing the nutritional plan and providing appropriate nutrition support to the individual, helps to enhance the process of bone healing. Eat a wide variety of *Pathyaahara* every day to maintain health and to boost up the immune functions. Nutritional needs are complex and vary individually and according to disease state. Adequate nutrition is always required in diseases to improve Quality of life to meet specific need of patient in bone care, appropriate nutritional support is considered part and eating wholesome diet (*Pathya aahara*) in fracture enhance the healing process. For proper healing of *Bhagna* along with *Chikitsa, Pathya apanya* has been mentioned by our *Acharyas*, if followed properly the healing process will be enhanced.

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